ROAD MAINTENANCE

“Potpourri”

MUTCD – Speed Limits – Road Closures

Springtime Maintenance Concerns

by

Duane A. Blanck, P.E.

Minnesota Association of Townships

2017 Short Courses
What is it?

Where is it available?

How does it apply to Town Roads?

How to use it..........

What to know........
MN MUTCD – What is it?

The “Minnesota Manual on Uniform Traffic Control Devises for Streets and Highways” has been established to provide a uniform policy for all traffic control devices on all public streets, roads and highways within the State of Minnesota. It is prepared pursuant to the authority of the Minnesota Department of Transportation as provided in Minnesota Statute 169. Such a manual has been published by the State of Minnesota since 1939.

It is the “bible of traffic control devices” based on the MUTCD as published and maintained by the Federal Highway Administration. The MUTCD is regularly updated as guided by a National Committee representing transportation engineers from State DOTs, Cities and Counties.
MN MUTCD – Where available?

Hard copies are available at MnDOT District Offices and at your County Engineer’s Office. However there is no real reason for a Township to have one as these days the MN MUTCD is conveniently available on-line.

1. Simply google MN MUTCD.

2. Go to the MnDOT website with the following:
   
   www.dot.state.mn.us/trafficeng/pub/mutcd
The MN MUTCD applies to your roads – Town Roads – it applies to ALL public roads and private roads open to the public, and includes streets and bikeways, in Minnesota.

The MN MUTCD further requires Road Authorities to adopt a sign maintenance program which can be documented in a sign policy.

NOTE: Minnesota Association of Townships has developed a “model” Road Sign Policy which can be found on the MAT website, click on Resource Center, click on Resource Links and “Roads and Signs.”
MN MUTCD – How to use it.

- Since the MN MUTCD requires compliance by all road authorities (and Town Boards are a road authority) it is important to have some knowledge about it.

- Use it with care and understanding – the manual describes the application of traffic control devices but is not to be a legal requirement for their installation.

- The decision to use a traffic control device should be made on the basis of either an engineering study or the application of engineering judgment – the manual is not a substitute for engineering judgment.
MN MUTCD – What to know.

For Low Volume Roads (less than 400 ADT) – most Town Roads fall into this category – there are few “usage requirements” of signs in accordance with the MN MUTCD: they are regulatory signs of STOP or YIELD at passive railroad crossings and 3-types of warning signs – Advance Intersection Traffic Control, Railroad Crossing and Minimum Maintenance Road. However, all signs installed MUST be in compliance with the MN MUTCD.

The bottom line is that out of the hundreds of signs contained in the MN MUTCD only 15 signs are required. This suggests that if a road authority decides to put up a sign, most of the time that action will be based on exercising judgment and not on the requirements in the MN MUTCD.
MN MUTCD – Devices not covered.

It is important to note that certain types of signs and other devices that do not have any traffic control purpose are allowed by road authorities and most of them are not intended for use by road users in general, such as ones whose purpose is to:

• Assist highway/road maintenance personnel such as those used to mark culvert ends, or snowplowing guides
• Assist fire or law enforcement personnel such as those used to identify fire hydrants, speed measurement zones
• Assist utility company personnel and highway contractors such as those used to mark underground utilities
• Identify local non-traffic ordinances
• Notice of local civic organization meetings
CHAPTER 169. TRAFFIC REGULATIONS
Section 169.14 SPEED LIMITS

- Authority or Basis = Minnesota Statutes
- Outline/Summary
- Regulatory –vs- Advisory
- How to Establish
- Special Conditions and Signing
SPEED LIMITS – Authority/Basis

- The “authority” for Speed Limits in Minnesota is found in Chapter 169 of Minnesota Statutes, and specifically in Section 169.14.

- The “basis” of Speed Limits in Minnesota is the **duty to drive with care principle** as noted in Subd. 1 of Section 169.14: “No person shall drive a vehicle on a highway at a speed greater that is reasonable and prudent under the conditions. Every driver is responsible for becoming and remaining aware of the actual and potential hazards then existing on the highway (street or road) and must use due care in operating a vehicle.”
Where no special hazard exists there are eight (8) established Speed Limits from 10 MPH (for alleys) to 70 MPH (for interstate highways), Section 169.14, Subd. 2:

• 30 MPH in urban district
• 65 MPH on non-interstate expressways
• 55 MPH in locations other than those specified
• 70 MPH on interstate highways outside urban areas
• 65 MPH on interstate highways inside urban areas
• 10 MPH in alleys
• 25 MPH on residential roadways
• 35 MPH in rural residential district
SPEED LIMITS – Regulatory –vs- Advisory

- Regulatory Signs are used to inform road users of selected traffic laws or regulations and indicate the applicability of the legal requirements. For Speed Limits they are Rectangular in shape and are “black-on-white.” They are enforceable.

- Advisory Signs call attention to unexpected conditions on or adjacent to a highway, street or road and to situations that might not be readily apparent to road users. Advisory SPEED plaques or signs shall only be used to supplement a warning sign and shall not be installed as a stand-alone or separate sign installation. They are rectangular in shape and are “black-on-yellow.” They are not generally enforceable except in obvious negligence or carelessness situations.
SPEED LIMITS – How to establish

- Section 169.14 Subd. 5 provides for establishing Speed Limits other than the eight (8) speed limits set forth in Subd. 2 on the basis of an engineering and traffic investigation conducted by the Commissioner of MnDOT.
- A Road Authority believing that the existing speed limit upon any street or road within its jurisdiction, and not part of the trunk highway system, may request the Commissioner to conduct a study and designate what speed is reasonable and safe. This is accomplished by a Town Board adopting a resolution identifying the road segment and requesting a speed zone study, and submitting it to the MnDOT District Traffic Engineer.
SPEED LIMITS – Gravel Roads

Gravel roads are unique compared to paved roads when it comes to speed limits; typically they are constructed/exist with minimal design criteria, are subject to fluctuating or changing surface conditions, have low enforcement priority, and serve low traffic volumes usually comprised of local traffic, therefore:

- the Speed Limit on Gravel Roads falls under Section 169.14 Subd. 1 as previously noted: the duty to drive with care principle ("Basic Rule") and thus Subd. 3 of Section 169.14 applies to gravel roads were speeds may not exceed 55 MPH in locations that are not designated by law or by a MnDOT engineering and traffic investigation, as a result:

- the Speed Limit on a gravel road depends on the condition of such a road at any given time but not more than 55 MPH; typically speed limit signs are not installed.
SPEED LIMITS – Gravel Roads

• MnDOT will honor a request for an engineering and traffic investigation to “speed zone” a gravel road as noted in Section 169.14 Subd. 5. However, MnDOT has generally not set speed limits on gravel roads but rather relies on the “Basic Rule.”

• Conditions which may prompt consideration that a speed limit should be established on a gravel road include:
  1. Roads serving as a connector between two paved roads as a continuous roadway;
  2. Roads that are densely populated with rural residential homes or seasonal homes and cabins.
SPEED LIMITS –
Special Conditions and Signing

The Statutes provide some specific Speed Limits that apply to Town Roads and are part of the eight (8) speed limits set forth in Subd. 2 of Section 169.14 and require appropriate signing. They are:

1. Speeds may not exceed 30 MPH in an urban district *
2. Speeds may not exceed 35 MPH in a rural residential district*-
3. Speeds may not exceed 25 MPH on a residential roadway*-
4. Speeds may not exceed 10 MPH in alleys*
5. Speeds may not exceed 55 MPH in locations that are not designated by law or a MnDOT speed study

* See definitions in Section 169.011
- MAT has sample resolutions for #2. and #3. above
ROAD CLOSURES

There are a variety of reasons why a Town Board may choose to close or barricade a town road such as road construction, routine maintenance or serious damage to a road or bridge.

• Authority to Close a Road
• Risk Management related to Closing a Road
• When to Close a Road
• What to do when Closing a Road
ROAD CLOSURES - Authority

• Section 164.02 authorizes and requires Towns to maintain and supervise town roads; Closing a Road for whatever reason is included in the overall responsibilities of a local road authority.

• Section 164.152 entitled “Barricaded Road; Liability” notes barricading a road and the requirements by resolution to close a road and thus exempting a Town from liability.

• Section 160.16 Subd. 3 permits road authorities to provide for the erection of Barricades so as to prevent traffic from entering any impassable section of a road.

• Section 169.06 Subd. 3 requires local road authorities to place and maintain traffic control devices in accordance with the state “manual” and specifications (MN MUTCD).
ROAD CLOSURES - Risk Management

Definition: a means or way to
(1) reduce the exposure to liability and
(2) increase safety.

• The basic consideration for Risk Management related to Road Closures is to provide for the “Public Health, Safety and Welfare.”

• To reduce liability concerns road authorities need to make an effort to have some knowledge and understanding of all applicable statutes, rules and regulations.

• Manage risk by being in compliance with the MN MUTCD with actions such as signing and placing barricades.
ROAD CLOSURES – When to do

A road should be closed whenever it is necessary and appropriate to protect the Public Health, Safety and Welfare in the event a road or a section of a road becomes impassable and therefore is a hazard to reasonable vehicular travel.

1. During routine maintenance work of relatively short duration
2. During non-routine maintenance work of long term duration
3. During construction activity of long term duration
4. As the result of storm damage and natural disasters
5. As the result of serious accidents disrupting normal traffic
6. As the result of damages to critical road features such as bridges, drainage structures, retaining walls, etc.
7. Damage to roadside features and appurtenances such as power lines resulting in unsafe conditions.
ROAD CLOSURE – What to do

• Adopt a Resolution to be exempt from liability for claims
• Barricades are required – MN Statutes, Section 164.152
• Provide proper signing as per MN MUTCD and other appropriate requirements including Detour signing as appropriate and necessary for long term closures
ROAD CLOSURE – What to do

• Maintenance and Construction road closures are signed with warning signs, diamond shaped and “black-on-orange” and with regulatory signs, rectangular “black-on-white.”

• There is no particular procedure set out in Statutes for barricading a road but public notice is always appropriate if time and the situation allow. Signing and barricading are defined in the MN MUTCD, field manuals and guide books.
ROAD CLOSURE –
Minimum Maintenance Road

The Minimum Maintenance Road designation is one of three primary designations that Town Boards can place on their roads. Closed Road and Rustic Road are the other two.

Roads that are not needed during winter months may be closed and barricaded to save maintenance dollars and to protect the Town Board from liability. Minimum maintenance does not mean NO maintenance. If no maintenance is to be provided then the road should be designated as a Closed Road. Signing such as “No Winter Maintenance” does not provide protection from liability; Barricading with Road Closed sign as per Section 164.152 is the proper way to manage risk (liability).
There are certain Routine Maintenance concerns that are associated with “springtime” maintenance activities, and typically they are obvious and usually troublesome to road users. These concerns should be identified with signing as may be appropriate and addressed as soon as weather conditions permit. They are:

• Frost Boils or Soft Spots and “Potholes”

• Retrieving Material (gravel) and Reshaping the Driving Surface
SPRINGTIME MAINTENANCE –
Frost Boils or Soft Spots

These maintenance concerns are typically the result of POOR or WEAK subgrade soil conditions – material that is moisture susceptible or non-drainable and thus frost susceptible.

Essentially there are two solutions to correct these concerns* and are accomplished when ALL the frost is out of the roadbed:

1. Excavate and remove the weak, unacceptable, wet soil or material and import new, clean, drainable soil preferably granular type material followed by re-graveling;
2. Install geotextile (fabric) or geosynthetic (grid) in lieu of excavating and import new clean, drainable soil, preferably granular type material followed by re-graveling.

*See FHWA Gravel Roads Construction & Maintenance Guide
Potholes in bituminous surfaced roads are primarily the result of the intrusion of moisture and subsequent freezing and thawing. They should be filled with an asphaltic material using proper procedures as soon as possible to prevent further deterioration of the surrounding bituminous surface.

Recommended practice for repair of potholes include:

- Remove moisture as much as possible
- Remove broken bituminous materials
- Clean out the “hole” and particularly clean the edges
- Use an asphaltic tack on edges and bottom of hole if possible
- Fill with quality “cold mix asphalt” material or product
- Tamp the material leaving it slightly higher than surrounding area to allow for compaction by traffic
Snowplowing, particularly in early and late winter conditions, can contribute to the loss of surface (gravel) material. This material often ends up in the shoulder area or even the ditch. When in the shoulder area it is referred to as a “high shoulder” and can be retrieved and “reused.”

• Springtime is a good time to retrieve or recover this material as there is minimal vegetation and moisture is present.

• Motorgrader typically used – the process is commonly referred to as “pulling the shoulder” – often requires more than one pass, depending on the extent of material that has created the high shoulder, and more than one pass helps in dislodging any vegetation and maximizes the amount of material recovered for use in Reshaping.
SPRINGTIME MAINTENANCE –
Reshaping the Driving Surface

Problems with driving surface conditions and shoulder shape due to winter maintenance can usually be corrected with the Motorgrader alone.

• Again, springtime is the best time in many respects to accomplish reshaping as there is minimal vegetative growth and often adequate moisture is available – want enough but not too much moisture for best results.

• “Pulling the Shoulder” is accomplished first.

• Reshaping of the driving surface (and the shoulder) is done by cutting the existing surface material as necessary with the Motorgrader and relaying the material to the proper shape and crown – use of a roller/compactor is recommended.
GRAVEL ROAD

Proper Crown and Shape

In summary, the recommended crown is a straight line from the shoulder to the centerline that rises approximately 1/2 inch per foot (or approximately 4 percent).

Note: 4% crown is equivalent to 1/2 inch per foot drop on the cross slope.
REFERENCES - RESOURCES

Much of the material in this presentation is directly from Minnesota Statutes, the MN Manual on Uniform Traffic Control Devices (MN MUTCD), and various Minnesota Department of Transportation (MnDOT) publications with permission.

Other valuable Road Maintenance References and Resources include:

- Gravel Roads – Construction and Maintenance Guide published by the Federal Highway Administration
- MnDOT Library – [www.dot.state.mn.us/library/](http://www.dot.state.mn.us/library/)
- Manual on Town Government – Chapter 14 Town Roads
- MAT – [www.mntownships.org](http://www.mntownships.org)
Ole made a “rolling stop” at da STOP sign, vas pulled over by a Police Officer for failing to stop at da STOP sign. Ole said to da Officer “Vell, I slowed down” and da Officer said to Ole “But you didn’t stop” – they kind of argued back and forth with these comments with Ole insisting he slowed down until in frustration da Officer took out his night stick and started to beat on Ole saying “Do you vant me to slow down or stop, der is a difference!” Ole quickly agreed…….

Questions & Answers